

In response to that Office Action, please amend the above-identified application as follows, pursuant to 37 C.F.R. §§ 1.121(h) and 1.173(b) (relating to reissue applications):

IN THE CLAIMS

Cancel Claims 7, 10, 13, 14, 17, 44, and 46-48 without prejudice and without disclaimer of subject matter.

Please amend Claims 6, 8, 9, 11, 12, 16, 18-22, 29, 36-38, 42, 43, 45, and 51-54 to read as follows. For the Examiner's convenience, all of the claims presently pending in this reissue application, whether amended herein or not, are set forth below. The claims are shown below as changed, if at all, relative to original U.S. Patent 5,759,080.¹

1. (Not Changed From Prior Version) A method of preparing an electron-emitting device, comprising the steps of:

forming electrodes opposed to each other on a substrate;

forming between the electrodes and in contact therewith

^{1/} Patent Claims 1-5 have not been amended in this reissue application. Claims 6, 8, 9, 11, 12, 15, 16, 18-43, 45, and 49-57, of which only Claims 6, 8, 9, 11, 12, 16, 18-22, 29, 36, 37, 38, 42, 43, 45, and 51-54 have been amended herein, are shown above completely underlined, since they were previously added in this reissue application (see, e.g., MPEP § 1453). Applicants understand that it is not necessary to include a marked-up version of the amended claims on any separate pages, since this is a reissue application (see, e.g., 37 C.F.R. §§ 1.121(h) and 1.173(b)).

an insulating layer in which fine particles are completely enclosed; and
etching the insulating layer so as to partially expose the fine particles.

2. (Not Changed From Prior Version) A method of preparing an electron-emitting device comprising the steps of:
forming electrodes opposed to each other on a substrate;
forming between the electrodes and in contact therewith a semiconductor layer in which fine particles are completely enclosed;
and
etching the semiconductor layer so as to partially expose the fine particles.

3. (Not Changed From Prior Version) A method of preparing an electron-emitting device, comprising the steps of:

- (i) forming a semiconductor layer on a substrate;
- (ii) forming electrodes on said semiconductor layer; and
- (iii) dispersing fine particles between said electrodes.

4. (Not Changed From Prior Version) The method of claim 3, wherein said semiconductor layer comprises a layer comprising an amorphous silicon

semiconductor, a crystallized silicon semiconductor, or a compound semiconductor.

5. (Not Changed From Prior Version) The method of claim 3, wherein said semiconductor layer has a film thickness of from 50 angstroms to 10 μ m.

6. (Amended) A method of fabricating an electron-emitting device which comprises a pair of electrodes and a layer disposed between the electrodes, the method comprising the steps of:

disposing the pair of electrodes in first and second regions on a substrate, respectively; and

providing the layer between the regions, the layer comprising a metal and a semiconductor,

wherein the metal is Pd.

8. (Amended) The method of Claim 6, wherein the semiconductor is selected from the group consisting of carbon and SnO₂.

9. (Amended) A method of fabricating an electron-emitting device, comprising the steps of:

disposing a pair of electrodes in first and second regions on a substrate, respectively; and

providing a layer between the regions, the layer comprising carbon and a metal,

wherein the metal is Pd.

11. (Amended) A method of fabricating an electron-emitting device, comprising the steps of:

disposing a pair of electrodes in first and second regions on a substrate, respectively; and

providing a layer between the regions, the layer comprising carbon and a metal,

wherein the layer comprises primarily carbon.

12. (Amended) A method of fabricating an electron-emitting device, comprising the steps of:

disposing a pair of electrodes in first and second regions on a substrate, respectively; and

providing a layer between the regions, the layer comprising an insulating material and at least some conductive particles which protrude from a surface of the layer,

wherein the conductive particles comprise Pd.

15. (Not Changed From Prior Version) The method of Claim 12,

wherein the insulating material is SiO₂.

16. (Amended) A method of fabricating an electron-emitting device,
comprising the steps of:

disposing a pair of electrodes in first and second regions on a substrate,
respectively; and

providing a layer between the regions, the layer comprising carbon and at
least some conductive particles,

wherein the layer comprises primarily carbon.

18. (Amended) The method of Claim 16, wherein the conductive
particles comprise a material selected from the group consisting of a metal and a
semiconductor.

19. (Amended) The method of Claim 18, wherein the metal is Pd.

20. (Amended) The method of any one of Claims 16, 18, and 19,
wherein at least some of the conductive particles protrude from a surface of the layer.

21. (Amended) The method of any one of Claims 12, 16, 18 and 19,
wherein the conductive particles are spatially separated from one another.

22. (Amended) The method of any one of Claims 12, 16, 18 and 19,
wherein diameters of the conductive particles are in a range of several tens of angstroms to
several micrometers.

23. (Not Changed From Prior Version) A method of fabricating an
electron-emitting device, comprising the steps of:

forming an insulating layer on a first portion of a surface of a substrate, so as
to define a step-like structure;

disposing a first electrode on a second portion of the surface of the
substrate;

disposing a second electrode on an upper surface of the insulating layer; and
providing a layer along a side of the insulating layer, between the first and
second electrodes, the layer comprising a metal and a semiconductor.

24. (Not Changed From Prior Version) The method of Claim 23,
wherein the side of the insulating layer includes a surface which is substantially
perpendicular to the surface of the substrate, and the layer is provided on that surface.

25. (Not Changed From Prior Version) The method of Claim 23 or 24,
wherein part of the insulating layer also is formed on a portion of the first electrode.

26. (Not Changed From Prior Version) The method of Claim 23 or 24,
wherein the metal is Pd.

27. (Not Changed From Prior Version) The method of Claim 26,
wherein the semiconductor is carbon.

28. (Not Changed From Prior Version) A method of fabricating an
electron-emitting device, comprising the steps of:
forming an insulating layer on a first portion of a surface of a substrate, so as
to define a step-like structure;
disposing a first electrode on a second portion of the surface of the
substrate;
disposing a second electrode on an upper surface of the insulating layer; and
providing a layer along a side of the insulating layer, between the first and
second electrodes, the layer comprising an insulating material and a conductive material.

29. (Amended) The method of Claim 28, wherein the side of the
insulating layer includes a surface which is substantially perpendicular to the surface of the
substrate, and the layer is provided on that surface.

30. (Not Changed From Prior Version) The method of Claim 28 or 29,

wherein part of the insulating layer also is formed on a portion of the first electrode.

31. (Not Changed From Prior Version) The method of Claim 28 or 29,
wherein the conductive material is selected from the group consisting of Pd and SnO₂.

32. (Not Changed From Prior Version) The method of Claim 31,
wherein the insulating material is SiO₂.

33. (Not Changed From Prior Version) A method of fabricating an
electron-emitting device, comprising the steps of:

forming an insulating layer on a first portion of a surface of a substrate, so as
to define a step-like structure;

disposing a first electrode on a second portion of the surface of the
substrate;

disposing a second electrode on an upper surface of the insulating layer; and
providing a layer along a side of the insulating layer, between the first and
second electrodes, the layer including carbon and at least some conductive particles.

34. (Not Changed From Prior Version) The method of Claim 33,
wherein the layer comprises primarily carbon.

35. (Not Changed From Prior Version) The method of Claim 33 or 34,
wherein the conductive particles include Pd.

36. (Amended) A method of fabricating an electron source that includes
a plurality of electron-emitting devices, each electron-emitting device comprising a pair of
electrodes and a layer disposed between the electrodes, wherein each electron-emitting
device is prepared by a method comprising the steps of:

disposing the pair of electrodes in first and second regions on a substrate,
respectively; and

providing the layer between the regions, the layer comprising Pd and a
semiconductor.

37. (Amended) A method of fabricating an electron source that includes
a plurality of electron-emitting devices, each electron-emitting device being prepared by a
method comprising the steps of:

disposing a pair of electrodes in first and second regions on a substrate,
respectively; and

providing a layer between the regions, the layer comprising carbon and Pd.

38. (Amended) A method of fabricating an electron source that includes
a plurality of electron-emitting devices, each electron-emitting device being prepared by a

method comprising the steps of:

disposing a pair of electrodes in first and second regions on a substrate,
respectively; and
providing a layer between the regions, the layer including an insulating
material and at least some conductive particles, wherein at least some of the conductive
particles protrude from a surface of the layer,
wherein the conductive particles comprise Pd.

39. (Not Changed From Prior Version) A method of fabricating an
electron source that includes a plurality of electron-emitting devices, each electron-emitting
device being prepared by a method comprising the steps of:

forming an insulating layer on a first portion of a surface of a substrate, so as
to define a step-like structure;
disposing a first electrode on a second portion of the surface of the
substrate;
disposing a second electrode on an upper surface of the insulating layer; and
providing a layer along a side of the insulating layer, between the first and
second electrodes, the layer comprising a metal and a semiconductor.

40. (Not Changed From Prior Version) A method of fabricating an
electron source that includes a plurality of electron-emitting devices, each electron-emitting

device being prepared by a method comprising the steps of:

forming an insulating layer on a first portion of a surface of a substrate, so as to define a step-like structure;

disposing a first electrode on a second portion of the surface of the substrate;

disposing a second electrode on an upper surface of the insulating layer; and providing a layer along a side of the insulating layer, between the first and second electrodes, the layer comprising an insulating material and a conductive material.

41. (Not Changed From Prior Version) A method of fabricating an electron source that includes a plurality of electron-emitting devices, each electron-emitting device being prepared by a method comprising the steps of:

forming an insulating layer on a first portion of a surface of a substrate, so as to define a step-like structure;

disposing a first electrode on a second portion of the surface of the substrate;

disposing a second electrode on an upper surface of the insulating layer; and providing a layer along a side of the insulating layer, between the first and second electrodes, the layer including carbon and at least some conductive particles.

42. (Amended) A method of fabricating an image forming apparatus which

includes an electron source and a phosphor plate, the electron source including a plurality of electron-emitting devices that are each prepared by a method according to any one of Claims 36-41.

43. (Amended) A method of fabricating an electron-emitting device which comprises a pair of electrodes and a layer disposed between the electrodes, the method comprising the steps of:

disposing a pair of electrodes in first and second regions on a substrate, respectively; and

providing the layer between the regions, the layer being a semiconductor layer that includes a metal,

wherein the metal is Pd.

45. (Amended) The method of Claim 43, wherein the semiconductor layer includes a semiconductor selected from the group consisting of carbon and SnO₂.

49. (Not Changed From Prior Version) A method of fabricating an electron-emitting device, comprising the steps of:

forming an insulating layer on a first portion of a surface of a substrate, so as to define a step-like structure;

disposing a first electrode on a second portion of the surface of the

substrate;

disposing a second electrode on an upper surface of the insulating layer; and
providing a layer along a side of the insulating layer, between the first and
second electrodes, the layer being a semiconductor layer which includes a metal.

50. (Not Changed From Prior Version) A method of fabricating an
electron-emitting device, comprising the steps of:

forming an insulating layer on a first portion of a surface of a substrate, so as
to define a step-like structure;

disposing a first electrode on a second portion of the surface of the
substrate;

disposing a second electrode on an upper surface of the insulating layer; and
providing a layer along a side of the insulating layer, between the first and
second electrodes, the layer being an insulating layer which includes a conductive material.

51. (Amended) A method of fabricating an electron source that includes
a plurality of electron-emitting devices, each electron-emitting device being prepared by a
method comprising the steps of:

disposing a pair of electrodes in first and second regions on a substrate,
respectively; and

providing a layer between the regions, the layer comprising carbon and at

least Pd particles.

52. (Amended) A method of fabricating an electron source that includes a plurality of electron-emitting devices, each electron-emitting device comprising a pair of electrodes and a layer disposed between the electrodes, each electron-emitting device being prepared by a method comprising the steps of:

disposing a pair of electrodes in first and second regions on a substrate, respectively; and

providing the layer between the regions, the layer being a semiconductor layer which includes Pd.

53. (Amended) A method of fabricating an electron source that includes a plurality of electron-emitting devices, each electron-emitting device being prepared by a method comprising the steps of:

disposing a pair of electrodes in first and second regions on a substrate, respectively; and

providing a layer between the regions, the layer being a carbon layer which includes Pd.

54. (Amended) A method of fabricating an electron source that includes a plurality of electron-emitting devices, each electron-emitting device being prepared by a

method comprising the steps of:

disposing a pair of electrodes in first and second regions on a substrate,
respectively; and

providing a layer between the regions, the layer being an insulating layer
which includes at least some conductive particles, wherein at least some of the conductive
particles protrude from a surface of the layer,

wherein the conductive particles comprise Pd.

55. (Not Changed From Prior Version) A method of fabricating an
electron source that includes a plurality of electron-emitting devices, each electron-emitting
device being prepared by a method comprising the steps of:

forming an insulating layer on a first portion of a surface of a substrate, so as
to define a step-like structure;

disposing a first electrode on a second portion of the surface of the
substrate;

disposing a second electrode on an upper surface of the insulating layer; and
providing a layer along a side of the insulating layer, between the first and
second electrodes, the layer being a semiconductor layer which includes a metal.

56. (Not Changed From Prior Version) A method of fabricating an
electron source that includes a plurality of electron-emitting devices, each electron-emitting